

Malaria, a forgotten crisis

What is malaria?

Malaria is the most widespread parasitic disease in the world.¹ 94% of cases have been recorded in sub-Saharan Africa.² The countries where it is prevalent have inadequate systems of health care and water treatment, which make it difficult to treat and eradicate the disease.

Malaria is caused by various types of parasite bearing the name Plasmodium: these are single-celled parasites transmitted to human beings by mosquitoes. Once inside the organism, the parasite migrates to the liver, then infects red blood corpuscles.³ The symptoms therefore appear several days after a mosquito bite has transmitted the infection. When the malaria paroxysm begins, the parasites cause serious inflammation accompanied by flu symptoms. The red blood corpuscles, which transport oxygen, are destroyed by the parasite, which leads to anaemia which in turn can potentially even cause death and sometimes jaundice (as a yellow pigment, bilirubin, is released). In addition to anaemia, malaria of the Plasmodium falciparum type modifies the walls of the red blood corpuscles and causes blockages, as well as disrupting the microcirculation in certain organs – such as the brain, the lungs or the kidneys – increasing the risk of death.⁴

NB: Your project must **focus on the impact of malaria** (mortality, morbidity, treatment, prevention, etc.). In other words, it should link the disease to the population groups concerned. The purpose is therefore not to analyse the disease itself, in isolation from other aspects.

Malaria mainly occurs in tropical countries. Local populations, who in many cases live in areas with stagnant water (favoured by mosquitoes as an environment in which to allow their larvae to develop) do not always have the means to take preventive measures, such as using mosquito netting, or do not have local health centres, or else are unable to access treatment. For this reason, the disease is widely neglected, as it mainly affects poor people, who rarely have the means to pay for treatment.

Global trends⁵

1. Globally, there were an estimated 247 million malaria cases in 2021 in 84 malaria endemic countries (including the territory of French Guiana), an increase from 245 million in 2020, with most of this increase coming from countries in the WHO African Region.
2. In 2021, malaria deaths was estimated to 619 000.
3. The percentage of total malaria deaths in children aged under 5 years reduced from 87% in 2000 to 76% in 2015. Since then there has been no change

¹ <https://www.msf-azg.be/fr/malaria#:~:text=Le%20paludisme%2C%20C3%A9galement%20appel%C3%A9%20C2%AB%20malaria,millions%20de%20personnes%20par%20an.>

² <https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2022>

³ <https://www.msf.ch/nos-actions/maladies/paludisme#:~:text=Le%20moustique%20vecteur%20du%20parasite&text=Une%20fois%20dans%20l'organisme,la%20piq%C3%BBre%20de%20moustique%20infectante.>

⁴ <https://www.msf.ch/nos-actions/maladies/paludisme#:~:text=Si%20un%20moustique%20sain%20pique,la%20piq%C3%BBre%20de%20moustique%20infectante.>

⁵ <https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2022>

4. In 2021, in 38 moderate and high transmission countries in the WHO African Region, there were an estimated 40 million pregnancies, of which 13.3 million (32%) were exposed to malaria infection during pregnancy

Malaria's impact on health

Malaria begins with flu-like symptoms, with an onset 9 to 14 days after infection. Symptoms include fever (cycles of fever, shivering and sweating may develop), pain in the joints, headaches, vomiting and convulsions. Coma may follow. If uncomplicated malaria is left untreated, it may become aggravated: each year, some eight million cases of malaria progress to the severe stage.⁶

Pregnant women and children, especially those under the age of five, are particularly vulnerable to malaria: their organisms are more fragile and they have not yet developed immunity to the parasite. Those suffering from malnutrition or other afflictions are even more seriously affected by malaria. Young children therefore need to be cared for as quickly as possible in order to prevent the disease from degenerating into severe malaria.⁷

In the early 2000s, progress was made thanks to the large-scale use of mosquito netting impregnated with insecticide and the introduction of medicines combining several different active molecules, including an artemisinin derivative. These measures have considerably reduced the number of deaths, and the incidence (the number of cases per 1 000 inhabitants exposed to the risk of malaria) fell from 80 in 2000 to 57 in 2019. But currently the decline seems to be bottoming out.⁸

Today, precise and rapid diagnosis without the need for a laboratory is possible thanks to rapid diagnostic tests. It is enough to place a drop of blood on a test strip with a reagent which changes colour if the test is positive.⁹

It is important to use the rapid test to confirm cases of malaria, for several reasons:

- Early diagnosis makes it possible to prevent the disease from assuming a severe form which will be fatal in nearly 30% of cases.
- It makes it possible to treat only those patients who genuinely have malaria, limiting the development of resistance to medicines.
- Patients who test negative can receive treatment appropriate to the disease which has caused their symptoms.¹⁰

⁶ <https://www.msf.ch/nos-actions/maladies/paludisme#:~:text=Si%20un%20moustique%20sain%20pique,la%20piq%C3%BBre%20de%20moustique%20infectante>.

⁷ <https://www.msf.lu/en/medical-approach/malaria>

⁸ <https://www.msf.ch/nos-actions/maladies/paludisme>

⁹ <https://epicentre.msf.org/en/portfolio/malaria>

¹⁰ <https://www.msf-azg.be/fr/malaria>

Effective means of prevention exist¹¹

The prime way to protect oneself against malaria is to protect oneself against mosquitoes! Sleeping under a mosquito net impregnated with insecticides, for example, affords effective protection against mosquito bites, particularly as malaria-carrying mosquitoes bite only in the evening. Spraying with insecticides, improving drainage around places where people live and wearing clothes which cover the limbs can also help to protect against mosquitoes.



Picture caption: A weapon of mass destruction in which no one is interested

The transmission of malaria also depends on climatic conditions, which may influence the prevalence and survival of mosquitoes, such as humidity, the level of precipitation and the temperature. In some places, transmission is more frequent in certain seasons, particularly during or just after the rainy season.

A method of prevention, 'seasonal malaria chemoprevention' (SMC), has been adopted in the Sahel sub-region, where seasonal prevalence is strong. It consists of administering a combination of antimalarials orally to children aged under five during the season when there is a high risk of transmission. This method is particularly beneficial in contexts of malnutrition and anaemia, as it makes it possible to reduce the number of complicated cases in countries where access to care is limited. The combination of malaria and malnutrition is particularly dangerous to children, and SMC has now become part of the national anti-malaria strategy in Niger, for example.

However, this 'seasonal' strategy is not applicable in other countries where we operate, where malaria is transmitted the whole year round – as is the case in the Democratic Republic of Congo, the Central African Republic, South Sudan and Cameroon. Other preventive strategies are being developed for these regions.

MSF's medical activities in response to malaria in 2021

Malaria has been the disease with which Médecins Sans Frontières (MSF) has been most concerned for many years: in 2021, the organisation carried out 2 681 500 malaria treatments,¹² representing one quarter of MSF's interventions worldwide.¹³

Early diagnosis and treatment of malaria reduce the intensity of the disease and make it possible to prevent it from becoming fatal. That is the field in which MSF's teams are working in most of the projects concerned. For some years, local community health promoters have been going around the villages to raise people's awareness, to detect malaria and either to treat patients or to refer them to health centres. These workers are also trained to detect malaria in its severe form and to administer a treatment (an artemisinin suppository) before transferring patients to centres where they can be cared for, which makes it possible to increase their chances of survival. Once there, the treatment continues with the injectable form of the same medicine – or else with another medicine, artesunate, which has

¹¹ <https://www.msf.ch/nos-actions/maladies/paludisme>

¹² <https://www.msf.org/international-activity-report-2021/2021-figures>

¹³ <https://epicentre.msf.org/en/portfolio/le-paludisme>

replaced quinine in the treatment of severe cases of malaria. This innovative approach has prevented many deaths.¹⁴

- **Control of the vector of transmission**

Mosquitoes reproduce in water and are particularly abundant during the rainy season. While the most basic means of prevention is to avoid mosquito bites by sleeping under mosquito netting impregnated with insecticide, it is necessary to eliminate the insects' natural breeding sites. Spraying with insecticide and drying up stagnant water sources are strategies used to control the proliferation of mosquitoes.¹⁵

For this purpose, as part of our environmental health measures, the teams of Médecins Sans Frontières (MSF) take action with target communities to improve the water and drainage situation so as to limit the number of mosquitoes and hence infections.

- **Rapid and reliable diagnosis**

Malaria is diagnosed using a rapid diagnostic test or a microscope with a qualified laboratory technician. A rapid diagnostic test uses a blood sample taken from a finger and is both relatively cheap and easy to perform – community health workers without prior training can quickly learn how to carry out the procedure. In some regions, no test is available, so that health workers have to identify sick children purely on the basis of symptoms, which results in some false diagnoses of malaria and means that the true cause of the symptoms is not treated.¹⁶

For this reason, MSF supplies rapid test kits to health organisations that it supports and to community health workers, enabling a reliable diagnosis to be made in about fifteen minutes and thus facilitating an appropriate medical response, either directly on the spot or by taking the patient to a health centre of some kind.

- **Treatment of malaria¹⁷**

The treatment applied by MSF – and also the most effective one – for malaria is a combination of two medicines, known as artemisinin combination therapy (ACT). These medicines cure most infections in three days. Early treatment is essential to prevent severe malaria, which would require hospitalisation with intravenous administration of antimalarials. Patients with severe malaria often need blood transfusions, which are only possible if there is a blood bank with a supply of safe blood – something that is difficult to organise in disadvantaged areas. Without treatment, or if treatment is substantially delayed, severe malaria kills.

The introduction of ACT was a major breakthrough, replacing old, ineffective treatments such as chloroquine or quinine. But unfortunately, the malaria parasite has developed resistance to artemisinin in some parts of Southeast Asia, which means that ACT might cease to be effective. If the spread of resistance cannot be halted, it will constitute a major risk to public health and most likely lead to a resurgence of malaria, because at present no new medicine is available.

¹⁴ <https://www.msf.ch/nos-actions/maladies/paludisme>

¹⁵ <https://www.msf.org/malaria>

¹⁶ <https://www.msf.org/malaria>

¹⁷ <https://www.msf.org/malaria>

Seasonal prevention

In the Sahel region of Africa, malaria is highly seasonal, and most cases occur within a period limited to 4 or 5 months of the year. In 2012, MSF trialled seasonal malaria chemoprevention (SMC) in Mali, Niger and Chad, and it is now being used in a number of countries. SMC consists of supplying antimalarial medicines to prevent infection among those most at risk – children aged under five. Malaria can also be prevented by avoiding being bitten by mosquitoes carrying the parasite, thanks to the use of mosquito nets impregnated with insecticide, which for many people are unavailable and which are therefore often distributed by MSF at the beginning of the rainy season.¹⁸

In short, malaria remains one of the deadliest tropical diseases, and despite some improvements, an effort by all health partners is urgently needed. Countries with nutrition crises or where there is conflict are particularly affected, also because preventive and curative strategies are more difficult to pursue there.¹⁹

Explanatory videos about malaria



Mali: Malaria – Prevention is better than cure...

<https://www.youtube.com/watch?v=HbLsZ2TfqYU&t=94s>



MSF preventing Malaria in South Sudan

https://www.youtube.com/watch?v=x-MNHuK_6YM



Why Planetary health matters to all of us

<https://www.youtube.com/watch?v=ObOi7K60Xqk>

¹⁸ <https://www.msf.org/malaria>

¹⁹ <https://www.msf.ch/nos-actions/maladies/paludisme>



Niger, 2021. In Haramia, as in 14 other villages in the commune of Bandé in southern Niger, villagers are experiencing a rainy season very different from those in previous years. In these villages, our teams have launched activities to treat water so as to prevent mosquito larvae from developing, which otherwise spread malaria.

<https://media.msf.org/AssetLink/sb4p35j4k3275h7k6b3eh414adiuiciv.mp4>



Burundi, 2021. Spraying inside the home involves applying to the walls and ceilings of buildings – homes, barns, outhouses – an insecticide which kills any mosquitoes that land there. This remains effective for months at a time and considerably reduces the number of cases of malaria when combined with the use of mosquito netting.

<https://media.msf.org/AssetLink/1rj6y563wy4u62l8qflkm520884xb01h.mp4>

Illustrated information from the field



Niger, 2015. This little child is receiving therapeutic food during Médecins Sans Frontières' campaign against malaria.



Central African Republic, 2020. An MSF team in Batangafo goes from door to door distributing a preventive treatment against malaria to members of the community.



Democratic Republic of Congo, 2021. Community health promoters have the role of educating members of the community about various health issues, particularly: good hygiene and family planning; how to prevent diseases and what to do if someone falls ill; and the medical services available to them in the region. Pascal lives at the Ugudo Zii displaced people site and has been elected by his community as a community health promoter.

'I go from door to door and show people good practices qui which can help to prevent diseases. Many problems come from the water, which is not stored correctly, making it a fertile breeding site for mosquitoes, and it can be contaminated and cause diarrhoea and other health problems.'



Venezuela, 2021. Melfran Herrera is a biologist specialising in the control of insect-borne diseases. He works as a supervisor in MSF's antivectoral campaign in the north-east of the country, where MSF is supporting the regional health authorities in their efforts to fight the disease.

Testimony from our patients



Central African Republic, 2020. Chancellor and her five-year-old son, Yakota Abbias, have both received antimalarials from MSF for preventive purposes.

'Because he has caught malaria, my son is very weak, and the doctors have said that he has anaemia. They are trying to stabilise his condition to prevent other complications which could be fatal. I am so afraid of losing him.'



Borno State, Nigeria, 2019. Yeza waits at her daughter's bedside while she is treated for malaria at MSF's clinic in Bama.

'We have been in this room for five days now. My daughter has malaria; before I brought her for treatment, she had a fever and was vomiting. We first went to other clinics, as well as the general hospital: they gave us antimalarial medicines and sent us home, but then MSF's health surveillance workers came to the camp and told me that I should bring the children here for treatment.'



North Darfur State, Sudan, 2019. Maha Mohamed Ababakar, aged 22, looks at his daughter Salma Ibrahim Javer, aged 7, who is recovering from malaria at El Fasher Children's Hospital.

'Many families in my village include members who have contracted malaria at some point. Nine out of ten members of my family have already had it. I had malaria a month ago, and I have contracted it four times during my life. This year, I suffered worse. Last year, we were given some mosquito netting, but this year no one has brought us any. We have four mosquito nets for 10 people in our house. We think that the mosquito population is large. The weather is changing, and the rainy season is lasting longer. Next to our house, there are swimming pools full of water. Emptying them would help, but we would also like to obtain preventive medicines to protect ourselves against the mosquitoes.'

Testimony from our staff



Sydeeka Narayan has worked for MSF as a community nurse in the Democratic Republic of Congo. She speaks about her experience of treating malaria.

'Working with nurses and health professionals on a programme focusing on the prevention and early detection of malaria is a source of hope'.

The WHO's 2022 report

<https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2022>